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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/785,443	02/23/2004	Michael Bodiger	Mo7115N/LeA 33,883N	8534
157	7590	06/25/2004	EXAMINER	
BAYER POLYMERS LLC 100 BAYER ROAD PITTSBURGH, PA 15205			BOYKIN, TERRESSA M	
			ART UNIT	PAPER NUMBER
			1711	

DATE MAILED: 06/25/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/785,443

Applicant(s)

BODIGER ET AL.

Examiner

Terressa M. Boykin

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 February 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2 and 4-9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2 and 4-9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☒ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 2/04.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

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Priority

Acknowledgment is made of applicant's claim for foreign priority based on an application filed in 10785443 on 2-23-04. It is noted, however, that applicant has not filed a certified copy of the German application as required by 35 U.S.C. 119(b).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-2, 4-9 are rejected under 35 U.S.C. 102(e) as being anticipated by **US 6723824** note abstract, cols 3-6, examples 1-2, and table 1.

US 6723824 discloses an optical disk substrate formed of an aromatic polycarbonate resin obtained by a reaction between an aromatic dihydroxy compound and a carbonate diester and in which the content of undissolved substances that emit light by irradiation with light having a wavelength of 380 nm and have a size of 30 μ m or greater is 100 pieces or less per kg of said resin, and a molding material therefore.

The reference notes that, in general, disk substrates for an optical disk, a laser disk, etc., are generally produced by injection molding, and a molding temperature is a high

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temperature of 300 degrees C or higher. Further, a continuous production is required, so that the polycarbonate resin is required to have high thermal stability. However, an aromatic polycarbonate resin obtained by a melting method in the presence of the above metal catalyst is sometimes partially pyrolyzed during melt-molding due to a residual metal catalyst, and the aromatic polycarbonate resin is poor in thermal stability. Further, a disk is caused to have white spots in its substrate when left at high temperatures under high humidity for a long period of time, and it has a defect that its reliability that should extend for a long period of time is impaired. In recent years, the disk substrates are increasingly required to have further improved performances including a solution to the above problem.

In solving this problem, the reference has studied application of an aromatic polycarbonate resin obtained by a reaction between an aromatic dihydroxy compound and a carbonate diester (also generally called "melt polymerization method") to disk substrates. As a result, it has been found that the number of luminous undissolved substances generated by irradiation with specific wavelength (wavelength of 380 nm), of the undissolved substances in a resin, has something to do with the number of white spots, i.e. defects, that occur after the holding for a long period of time and that the number of white spots to occur can be decreased to a tolerance limit or less by decreasing such specific undissolved substances to a specific number or less.

To avoid the above problem of such defects, the reference thus provides an improved optical disk substrate formed of an aromatic polycarbonate resin obtained by a reaction between an aromatic dihydroxy compound and a carbonate diester and in which the content of undissolved substances that emit light by irradiation with light having a

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wavelength of 380 nm and have a size of 30 μm or greater is 100 pieces or less per kg of said resin.

The polycarbonate resin used in the present invention is a resin obtained by a melt-polymerization method based on an ester interchange of a dihydric phenol and a carbonate precursor. Typical examples of the dihydric phenol used above include the preferred homopolymer or copolymer is obtained from at least one bisphenol selected from the group consisting of bisphenol A, 2,2-bis[(4-hydroxy-3-methyl)phenyl]propane, 2,2-bis[(3,5-dibromo-4-hydroxy)phenyl]propane, ethylene glycol bis(4-hydroxyphenyl)ether, 2,2-bis (4-hydroxyphenyl) hexafluoropropane, 2,2-bis(4-hydroxyphenyl)butane, 1,1-bis(4-hydroxyphenyl)cyclohexane, *1,1-bis(4-hydroxyphenyl)-3,3,5-trimethylcyclohexane*,.

With regard to molding and extrusion of the polycarbonate, the reference states that after the polycarbonate resin is produced by a known melt-polymerization and in an extrusion step of obtaining a polycarbonate resin in the form of pellets to be supplied to injection molding (pelletization step), preferably, foreign matter is removed through a sintered metal filter having a filtering accuracy of 10 μm when the polycarbonate resin is in a molten state. It is preferred to add additives such as phosphorus-based antioxidant, etc., as required. In any case, it is required to decrease the contents of foreign matter, impurities, a solvent, etc., in the resin as a raw material before the injection molding so as to make them as small as possible. When an optical disk substrate is produced from the above polycarbonate resin, an injection molding machine (including an injection compression molding machine) is used. While the above injection

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molding machine can be selected from generally used injection molding machines, it is preferred to use an injection molding machine having a cylinder and a screw made of a material that has low adhesion to the resin and exhibits anti-corrosion properties and anti-wearing properties, in view of prevention of occurrence of a carbonaceous material and an improvement in reliability of the disk substrate. Concerning injection molding conditions, preferably, the cylinder temperature is from 300 to 400 degrees C and the mold temperature is from 50 to 140 degrees C., and under these conditions, an optically excellent optical disk substrate can be obtained. In view of the object of the present invention, preferably, the molding environment is as clean as possible. It is also important to remove water by fully drying the material that is to be supplied to the molding and take care not to cause a residence that may cause decomposition of a molten resin.

With regard to the articles made therefrom, it is noted that the polycarbonate may be employed as a transparent substrate of an optical information recording medium that is a recording medium for recording and/or reproducing information with a laser beam, such as an audio disk, a laser disk, an optical disk memory, a magneto-optical disk, that is, for an optical disk substrate.

In view of the above, there appears to be no significant difference between the reference and that which is claimed by applicant(s). Any differences not specifically mentioned appear to be conventional. Consequently, the claimed invention cannot be deemed as novel and accordingly is unpatentable.

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Correspondence

Please note that the cited U.S. patents and patent application publications are available for download via the Office's PAIR. As an alternate source, all U.S. patents and patent application publications are available on the USPTO web site (www.uspto.gov), from the Office of Public Records and from commercial sources. Applicants may be referred to the Electronic Business Center (EBC) at <http://www.uspto.gov/ebc/index.html> or 1-866-217-9197.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Terressa Boykin whose telephone number is 571 272-1069. The examiner can normally be reached on Monday through Friday from 6:30am to 3:00pm.

The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306. The general information number for listings of personnel is (571-272-1700).

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

tmb



Examiner Terressa Boykin
Primary Examiner
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